

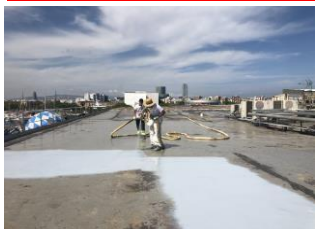
POLYUREA RAYSTON P

RAYSTON
products



Polyurea membrane for waterproofing, application by projection

DESCRIPTION



continuous.

Polyurea Rayston P is a system based on pure polyurea, of two components of extra fast curing for the application of elastic membranes, with crack bridging. Only applied by hot mechanical projection.

The product can be combined with different geotextiles to obtain "liners" without application joints in

ADVANTAGES

- Waterproofing of concrete structures.
- Roof waterproofing.
- Liners of on-site application, totally continuous, for secondary containment, rafts, landfills, tunnels, canals, repair of dams, reservoirs, etc.
- Wastewater facilities.
- Polyurea Rayston P can be coated with aliphatic polyurethane to provide UV protection to color change.



Waterproofing of all type of hydraulic infrastructures also wastewater installations (high resistance to H₂S)

Waterproofing of foundations, especially those designed as barriers to Radon gas.

PROPERTIES

- Crack bridging capability.
- Membrane of high elasticity, totally continuous.
- Very fast curing with application by hot projection equipment for two components.
- Pigmentable

TECHNICAL DATA

INFORMATION ON THE PRODUCT BEFORE APPLICATION

	Component A	Component B
Chemical identity	Polyamine	Aromatic isocyanate prepolymer
Physical condition	Liquid	Liquid
Presentation	Metal packaging	Metal packaging
Note: the pigment is delivered in a third container. See Pigment Spray datasheet for details Specific.	185 kg 18.5 kg	211 kg 21.0 kg
Solids content	100%	100%
Flash point	>100°C	>100°C
Color	Yellow (without pigmentation)	Yellowish

Density	Temp	Density	Temp	Density
	(°C)	(g/cm ³)	(°C)	(g/cm ³)
	25	1.01	25	1,12

Viscosity	Temp	Viscosity	Temp	Viscosity
	(°C)	(mPa.s)	(°C)	(mPa.s)
Brookfield approximate values	25	440	25	425
A/B ratio	A=1, B=1.11 by weight A=1, B=1 in volume			
Density and viscosity of the mixture	Rapid polymerization (see potlife time)			
Color	Dark yellow. Component A is pigmented by adding color pigment to Polyurea Rayston P (Pigment Spray), supplied in conjunction with each kit Polyurea Rayston P			
Potlife	Gelling time of the mixture A+B (20 g) 4 s at 25°C 3 s at 60°C Tack free 30 s at 70°C			
Storage and caducity	Store preferably between 10° and 30°C Caducity: 12 months from manufacture			

INFORMATION ABOUT THE FINAL PRODUCT

Final state	Elastomeric solid membrane.												
Colour	Spray pigment is supplied for Blue 5015, Grey RAL 7011, Tile, Beige RAL 1001. Other colors to consult.												
Gloss (60°)	80-85%												
Hardness Shore, ISO 868	92 A; 40 D												
Mechanical properties	Elongation at break: 497% Maximum tensile strength: 21.6 MPa (UNE EN ISO 527-1/3)												
	<table border="1"> <thead> <tr> <th>Elongation (%)</th> <th>Traction (MPa)</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>2.2</td> </tr> <tr> <td>100</td> <td>4.4</td> </tr> <tr> <td>200</td> <td>8.7</td> </tr> <tr> <td>300</td> <td>13</td> </tr> <tr> <td>497</td> <td>21.6</td> </tr> </tbody> </table>	Elongation (%)	Traction (MPa)	50	2.2	100	4.4	200	8.7	300	13	497	21.6
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Tear strenght	69 N/mm (ISO 34-1 method B)												
Adhesion strenght	Concrete (with EP Primer): 4 MPa Wood plywood (with EP Primer): 1.6 MPa Steel (with PU Primer): 5.3 MPa, >1.5 MPa substrate break PU foam (150 kg/m ³): 2.5 MPa (failure substrate-primer)												
UV resistance	Polyurea Rayston P is based on aromatic isocyanate. It is to be expected a change of color in the sunlight that, however, does not affect its mechanical properties. An additional UV protection is obtained by means of an aliphatic finish type Impertrans or Colodur.												
Abrasion resistance	10 mg (Taber, CS-10, 1000 c, 1 kg)												
Thermal resistance	Stable up to 180°C According to low temperature foldability test (UNE EN 495-5:2001), the elastomer can be bent at -45°C for												



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Última revisión:

29/07/2021

Página:

1/3



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a temperature TH4 (90°C), according to the ETAG Guide 005 of the EOTA.

The "liner" obtained by combining the Polyurea Rayston P and selected geotextiles, allows to obtain a resistance to static punching (according to UNE-EN ISO 12236:2007 standard) 4000 kN or more

CHEMICAL RESISTANCE

Immersion test. Continuous contact.

(0=worst, 5=better).

Substance	Conditions	Results
Distilled water	15d, 80°C	5
Salt Water (saturated)	15d, 80°C	5
Xylene	7d, 80°C	2
Ethyl acetate	7d, 80°C	1
Isopropyl alcohol	7d, 80°C	0
Sodium hydroxide (50%)	7d, 80°C	5
Hydrogen peroxide (33%)	7d, 25°C	4
Sulfuric acid (10%)	7d, 80°C	5
Sulfuric acid (30%)	30d, 80°C	4
Acidofosforico (54%) lye	7d, 80°C	4
Ammonia	7d, 80°C	5
Gasoil	16d, 80°C	5
Hydrochloric acid 12m (37%)	7d, 80°C	0
Hydrochloric acid 6M (18%)	7d, 80°C	1
Hydrochloric acid 3M (9%)	7d, 80°C	4
Hydrochloric acid 0.75M (2%) Sodium hypochlorite	7d, 80°C	3
(1%) Engine oil	7d, 80°C	5
Crude oil	21d, 23°C	5
Acidosulfámico	7d, 60°C	4
Oleic acid Glycerin	7d, 80°C	0
Ethanol/water	7d, 80°C	5
20/80 Urea	7d, 80°C	4
Ammonium nitrate	24d, 80°C	5
	24d, 80°C	5

SUPPORT REQUIREMENTS

In order to obtain good penetration and adhesion, the support must always have the following characteristics.:

1. Leveled
2. Cohesive / compact with a minimum resistance of 1,5 N/mm² (pull-off test)
3. Regular and fine appearance
4. Free of fissures and cracks. If there are any, they should be treated beforehand
5. Healthy, clean, dry, free of dust or traces of materials or loose particles, surface slabs and free of fats, oils and mosses

ENVIRONMENTAL CONDITIONS OF HUMIDITY AND TEMPERATURE

The recommended temperature of the support for the application is between 10°C and 40°C. If the temperature is above 45°C, additional measures must be taken in accordance with the manufacturer's instructions. The humidity in the support should be less than 4% and in the environment, less than 85%. Higher humidities do not prevent the correct polymerization, although the adhesion to the support will decrease.

SUPPORT PREPARATION

Concrete supports should be prepared mechanically using an abrasive jet or scarifying to lift the surface and get an open pore. The support is printed and leveled until a regular surface is achieved. The pointed irregularities are eliminated with a polisher. Remove all dust and loose material from the surface with a brush, broom and/or vacuum cleaner.

NOTE: on a porous support with a high degree of humidity (without reaching the stagnation of water) the recommended primer is the First GC.

MIXING OR HOMOGENIZATION

Shake and homogenize the two components by means of appropriate equipment. Add the (pre-dosed) amount of Spray Pigment in component A and homogenize again. Recirculate the two components while heating to the prescribed application temperature

APPLICATION/CONSUMPTION

Polyurea Rayston P can only be applied by means of projection equipment suitable for hot two-component systems. The recommended temperatures are as follows.:

- Component A: 68°C
- Component B: 70°C
- Hose: 67°C

The pressure should be adjusted to about 140 bar.

During the application it is convenient to verify the layer thickness and that the evolution of the curing is correct.

Polyurea Rayston P is applied to 1.5-2.0 kg/m², to obtain a thickness between 1.5 and 2 mm

Contact Krypton Chemical for more technical details of the application

CURING TIME

Polyurea Rayston P acquires hardness to the touch within a few seconds of application.

Indicative values of the evolution of shore A hardness (1 mm, about plastic, 25°C, 50%hr)

Time	Hardness Shore A
5 min	28
10 min	40
20 min	55
1h	70
24 hrs	80
4 days	88

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REAPPLICATION

It is recommended to obtain the necessary thickness with the application of a single layer.

If a previous epoxy primer has been applied, apply Polyurea Rayston P only on the dry primer (approximately 8 hours).

RETURN TO SERVICE

Under normal conditions (25°C, 50% hr), the membrane is resistant to raindrops in 10 minutes.

TOOL CLEANING

In order to keep the materials in good condition of the projection machine (gun, gaskets, etc.), the cleaning of the equipment with solvents is not recommended. Instead, a plasticizer-type cleaning fluid, such as Rayston Fluid, can be used. Component B should be completely cleaned of those parts exposed to air and replaced with the plasticizer cleaner.

FAQ

Problems	Question	Cause	Solution
The product does not dry or remain sticky	Is the A/B ratio correct?	Different pressures	Verify and correct the operation of the machine
Bubbles or unclosed pores appear	Porous support?	Lack of primer	Apply epoxy primer as a sealant before Polyurea Rayston P Due to the speed of drying, polyurea forms pores
Product not covered	Horizontal support?	Product little loaded. Lack of pigment.	Apply minimum of 1 kg/m2 Homogenize well the component A
Gray color becomes darker	Is it going to be seen?	Reaction of the components to the light.	Apply ultima layer in rust red or tile / Impertrans + White or Gray

PRESERVATION AND MAINTENANCE OF THE PRODUCT

The covers made with Polyurea Rayston P must be maintained depending on the use made of them.

this maintenance includes the following operations:

- Removal of leaves
- Removal of grass, moss, vegetation and various wastes
- Maintain the proper functioning of stormwater sewerage
- Verify the presence of the sink bars in the places foreseen for this purpose, in order to avoid the obstruction of these in time
- Verification of the correct maintenance of various structures (joint covers, seams, parapets, cornices,...)
- Verification of possible breaks that may cause improper use
- If the aesthetic aspect of the cover were an important criterion, it is essential to regularly clean the surface with water (some detergent may be added) depending on the use.

It may be necessary to provide for the renovation of decorative layers (Impertrans / Colodur) in

function of the wear they suffer from traffic, or weathering (atmospheric corrosion, UV rays,...).

For stain removal, a surface treatment with Rayston solvent or isopropyl alcohol can be tested. Strong acids are discouraged. Some solvents can damage the membrane. If this happens, the affected area should be cut and repaired with new Polyurea Rayston P product, covering the original sheet at least 3 cm in all directions

SECURITY

Component B of Polyurea Rayston P contains isocyanates and component A corrosive polyamines that can cause burns. Always follow the instructions on the safety sheet of this product and take the protective measures described therein. In general, adequate ventilation and/or respiratory protection is mandatory for the operator (combined particle and particulate filter)

organic steam A2P2), along with protective clothing for the skin. The product should be used only for the intended uses and in the prescribed form.

This product should be intended for industrial and professional uses only. It is not ideal for DIY type use.

ENVIRONMENT

Empty containers should be handled with the same precautions as if they were full. Consider packaging as waste to be treated through an authorized waste manager. If the packages contain traces, do not mix them with other products without first ruling out possible dangerous reactions. Component A and B remnants can be mixed in equal parts in order to convert them into an inert solid material but never in a volume greater than 5 liters at a time to avoid dangerous heat generation.

ADDITIONAL INFORMATION

The information contained in this technical data sheet, as well as our advice, both written and provided verbally or through tests, are given in good faith based on our experience and the results obtained through tests carried out by independent laboratories, and without serving as a guarantee for the applicator, who must take them as merely indicative references and with strictly informative value.

We recommend that this information be studied in depth before proceeding to the use and application of any of these products, although it is especially advisable that they carry out tests "in situ", to determine the suitability of a treatment in the place, with the purpose and under the specific conditions that are given in each case.

Our recommendations do not exempt from the obligation that the applicator has to know in depth, the correct method of application of these systems before proceeding to their use, as well as to carry out as many previous tests as appropriate if the suitability of these for any work, installation or repair is doubted, taking into account the specific circumstances in which the product is going to be used.

The application, use and processing of our products are beyond our control and therefore under the sole responsibility of the installer. Consequently, the applicator will be solely and exclusively responsible for damages arising from the total or partial non-compliance with the manual of use and installation and, in general, the inappropriate use or application of these products.

This data sheet cancels previous versions (21/08/2020)



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3/3